

REMARKS

Claims 25-36 and 39-44 are pending in this application. By this Amendment, claims 25 and 31 are amended. Support for the amendment can be found in Applicant's Figs. 10A-11D, for example.

Claims 25, 26, 28-32, 35, 36 and 39-44 continue to read on the elected species and claims 25 and 31 are generic to non-elected claims 27, 33 and 34. Rejoinder of claims 27, 33 and 34 is requested when claims 26 and 31 are found allowable.

Claims 25, 26, 28-32, 35, 36 and 39-44 were rejected under 35 U.S.C. §103(a) over Hiwada, U.S. Patent No. 6,270,193, in view of Kishi, U.S. Patent No. 6,095,641, and Eifuku et al. (Eifuku), U.S. Patent No. 6,000,127. The rejection is respectfully traversed.

Claim 25 calls for a protrusion that is provided to each pair of the land and the terminal being connected electrically, and the protrusion provided corresponding to one pair of the land and the terminal is independent of the protrusion provided corresponding to another pair of the land and the terminal. Claim 31 calls for similar features.

Page 3 of the Office Action identifies Hiwada's bumps 64 as the metallic bond. However, Hiwada describes the bumps 64 as those obtained by plating a core made of copper with gold (Col. 9, lines 40 and 41). As such, Hiwada's bumps 64 do not correspond to a bond or the metallic bond of claims 25 and 31. The only structure in Hiwada that may be considered the metallic bond of claims 25 and 31 is the conductive adhesive 65. The only structure that may be considered the protrusion and the thermosetting resin of claims 25 and 31 is the potting material 66. As clearly illustrated in Hiwada's Fig. 10, for example, the potting material 66 covers a pair of electrodes 62, 68 and a pair of electrodes 63, 69. Hiwada thus fails to disclose protrusions or a thermosetting resin that are independent or the space as called for by claims 25 and 31.

Eifuku fails to overcome deficiencies of Hiwada because, as illustrated by Fig. 2C, the bonding agent 18 as a thermosetting resin covers a pair of the bump 6 and electrode 2 and the pair of the bump 7 and electrode 3. Kishi also fails to overcome the deficiencies of Hiwada.

Claims 25 and 31 call for forming an actuator unit including a piezoelectric element disposed on the ink passage unit, a surface electrode disposed on the piezoelectric element and having a main electrode portion opposed to a pressure chamber and a connecting portion opposed to a wall portion of the plurality of wall portions defining each of the plurality of pressure chambers of the ink passage unit, and a land disposed on the piezoelectric element in a region opposed to the wall portion, the land being electrically connected to the surface electrode, wherein the terminal is electrically connected to the land.

As admitted on page 3 of the Office Action, Hiwada fails to disclose a land disposed on the piezoelectric element in a region opposed to the wall portion. Eifuku fails to overcome the deficiencies of Hiwada. The Office Action asserts that Kishi discloses this feature. After further clarifying the wall portion, Kishi also fails to disclose this feature.

Kishi discloses an actuator unit 20 that includes a base plate 22 with piezoelectric elements where a plurality of ink chambers 24 are formed. (Figs. 3 and 4 and col. 6, lines 17-24). Kishi also discloses using drive electrodes 23 that are electrically connected to output side electrodes 28 at the bottom surface 22D of the base plate 22, with the drive electrodes 23 formed at the bottom surface 22D having a predetermined width. (Col. 7, lines 16-33).

Based on the above description, Applicant notes the following:

(1) Kishi fails to disclose the actuator unit 20 disposed on an ink passage unit. The base plate 22 is not the alleged wall portion of claims 25 and 31 because the base plate 22 is a part of the actuator unit 20.

(2) Because of (1), Kishi's drive electrodes 23 (alleged surface electrodes) do not have a connecting portion opposed to a wall portion of the plurality of wall portions

defining each of the plurality of pressure chambers of the ink passage unit, as called for in claims 25 and 31.


(3) Because of (1) and (2), Kishi's output side electrodes 28 (alleged lands) are not disposed on the piezoelectric element in a region opposed to the wall portion (of the plurality of wall portions defining each of the plurality of pressure chambers of the ink passage unit), as called for in claims 25 and 31.

It is respectfully requested that the rejection be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



James A. Oliff
Registration No. 27,075

Scott M. Schulte
Registration No. 44,325

JAO:SMS/mog

Date: September 6, 2007

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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